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ABSTRACT

Focusing on the cognitive style known as Field-Dependence-Independence (FDI), this literature review includes: (1) an examination of how one can better understand interpersonal behavior in the human relations training setting; (2) how to develop hypotheses about the relationships that might make for successful or unsuccessful matches between participants of varying cognitive styles, and human relations training (HRT) programs of varying degrees of structure; and (3) examples of FDI as a crucial differentiating variable in determining the effectiveness of matching strategies in the fields of education and psychotherapy. Two major questions addressed are: Are participant satisfaction and learning influenced by cognitive style? and What behaviors or interpersonal styles (e.g., task vs. maintenance orientation) might be expected from persons of varying cognitive styles? Suggestions are provided for future research exploring the interactions between training treatments and the cognitive styles of participants. (Author)

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Cognitive Style and Interpersonal Behavior:
Implications for Human Relations Training Settings.

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Cognitive Style and Interpersonal Behavior:
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Abstract

This paper focuses on the cognitive style known as Field-Dependence-Independence (FDI). The literature on FDI is reviewed: 1) to better understand interpersonal behavior in the human relations training setting, and 2) to hypothesize the relationships that might make for successful or unsuccessful matches between participants of varying cognitive styles and human relations training (HRT) programs of varying degrees of structure. FDI has been found to be a crucial differentiating variable in determining the effectiveness of matching strategies in the fields of education and psychotherapy (Witkin, Moore, Goodenough, & Cox, 1977; Witkin, Lewis, & Weil, 1968; Messick & Associates, 1976). Two major questions addressed by this review are: (1) Are participant satisfaction and learning (under particular training conditions) influenced by cognitive style?, and (2) What behaviors or interpersonal styles (e.g., task vs. maintenance orientation) might we expect from persons of varying cognitive styles? Suggestions are provided for future research exploring the interactions between training treatments and the cognitive styles of participants.

Cognitive Style and Interpersonal Behavior:

Implications for Human Relations Training Settings.

Introduction

The purposes of this paper are: 1) to call attention to the need for a matching model approach to human relations training (HRT) research, and 2) to review the literature on cognitive styles (especially field-dependence-independence) in an attempt to find out if persons of different cognitive styles are differentially responsive to human relations training. Differential responsiveness encompasses two types of situations: Individuals of different styles can respond in characteristically dissimilar ways to the same training, and individuals of the same style can respond to different types of training in different (yet consistent) ways.

To answer the above purposes this paper discusses: 1) the differential effectiveness of HRT, 2) the background to the construct of cognitive styles, 3) a review of cognitive style research that is germane to HRT, and 4) future research. The discussion here begins with an introduction to the problem of the differential effectiveness of different treatment programs in HRT. Next, a general background is provided for the construct of cognitive styles and the variable field-dependence-independence is introduced. The specific review of the cognitive style research in relation to HRT is organized into six theme areas: social orientation; participant style & member roles; satisfaction, learning & impact of the training experience;

cognitive mobility; matching effects and mismatching effects; and the influence of HRT upon cognitive style. At the end of this paper suggestions are provided for future investigations of the influence of cognitive style on HRT outcomes.

Difficulty in Ascertaining HRT Outcomes

To know exactly the impact of HRT on laboratory participants is often difficult. These difficulties stem from two causes: 1) it may be hard to discern when the changes and outcomes from training occur and how long they persist, and 2) there are measurement problems and conceptual complexities inherent in trying to find out exactly what the outcomes from HRT are. Effects have been noted immediately after a training experience, and yet these sometimes fade out or become extinguished over time (Smith, 1975). Other effects may not be immediately apparent, yet can reach statistically significant levels after a period of weeks or months (Harrison, 1966). For a detailed treatment of the broad variety of possible outcomes from training see Smith (1975) or Mezoff (1980d). Mezoff's review also discusses many of the problems inherent in measuring training effects.

Differential Effectiveness of HRT

In addition to the methodological difficulties inherent in measuring outcomes from training, the evaluation problem is compounded by the tendency for most HRT research to employ a "main effects" model. A main effects model compares the average outcomes (or gains) from a treatment group to the average outcomes from a control group. There may be large differences among participants in their reactions to, and learning from, the

HR laboratory experience. However, the main effects model may fail to discern these differential effects because the model considers only the average gain across all the participants.

A matching model (or aptitude-treatment-interaction) approach (Mezoff, 1980a) appears to provide some insight into the phenomenon of the differential effects of training. By investigating the effects of training across various sub-populations of HRT participants, one may be able to discern significant interactions between certain types of participants and certain training outcomes. These interactions found by the matching model approach suggest a differential responsiveness to training. They might go undetected if only the average outcomes tapped by the main effects model were studied.

Research show that certain people are more amenable to HRT than others. "Typically, wide differences are seen in the extent to which individual members 'take to' the sensitivity-training experience" (Harrison, 1966, p.518). Perhaps participants' personality traits account for the differences in how people respond to human relations training. Thus, a matching model approach to HRT seems more appropriate than simply averaging the gains made by the aggregated participants.

Consider, for example, the relationship between participant personality and rate of learning. A number of studies have attempted to identify those personality variables that differentiate between high and low learners in laboratory training settings (Harrison & Lubin, 1965; Joure et al., 1971; Anderson & Slocum, Jr., 1973; Poland & Jones, 1973; Mitchell,

1975). In attempting to discern those factors that facilitate laboratory learning all of the previous studies address the element of personality style or personal orientation. Three of the above studies (Harrison & Lubin, 1965; Joure et al., 1971; Anderson & Slocum, 1973) explicitly address the variable of participant cognitive style(1).

Research in education and psychotherapy suggests that cognitive style variables can account, in part, for the differential effectiveness of various educational and therapeutic programs (Witkin, Moore, Goodenough, & Cox, 1977; Witkin, Lewis, & Weil, 1968; Messick & Associates, 1976). There is, however, little research on cognitive styles in human relations training settings. In part, this is due to the fact that research on cognitive styles and interpersonal behavior is in its infancy (Witkin & Goodenough, 1977a). Further, most of the cognitive style research in education and psychotherapy has taken place in experimental settings.

If cognitive style were found to be correlated with training outcomes, there would be several important implications for HR trainers. The first and most useful result is that trainers could use knowledge about participant cognitive style to modify the design or focus of the training. It might be found that persons with a particular cognitive style function best in, or have an

(1) Only Harrison & Lubin (1965) cite the underlying cognitive models of personality upon which the cognitive style literature is built (Kelly, 1955; Harvey, Hunt, & Schroeder, 1961; Witkin, Dyk, Paterson, Goodenough, & Karp, 1962).

aversion to, a certain type of training format. If that were so, the training format (e.g., high or low structure; group or individual focus, etc.) could be altered in response to the cognitive style needs of participants.

Second, with a large scale training program it would be possible to group participants by cognitive style and provide each group with a more individualized training treatment. Mezoff reviews a number of matching model strategies that could be applied to HRT (1980a). He concludes that strategies which capitalize on client strengths are most suited to maximizing participant outcomes. Cognitive style is probably the most pervasive example of a client strength. If persons of different cognitive styles were differentially responsive to a training treatment, then strategies could be developed to modify the training treatments so as to accomodate (or match) the various cognitive style requirements of the HRT participants.

The third implication is the least useful: cognitive style could be used as one factor in the process of screening potential laboratory attendees. But, to reject candidates for training only on the basis of having an inappropriate cognitive style would be a rather crude application of findings. Since psychometric screening is virtually unknown in HRT, this approach would not be practical and is not advocated.

Cognitive Style

A cognitive style is a characteristic mode of mental functioning; that is, a typical pattern of organizing information.

Each individual has preferred ways of organizing all that he[/she] sees and remembers and thinks about. Consistent individual differences in these ways of organizing and processing information and experience have come to be called cognitive styles....They are conceptualized as stable attitudes, preferences, or habitual strategies determining a person's typical modes of perceiving, remembering, thinking, and problem solving.

Messick & Associates, 1976, pp.

4-5.

The Field-Dependence-Independence Continuum

There are many different dimensions of cognitive styles (Messick, 1970, pp. 188-189), the most extensively researched of which is the Field-Dependence-Independence (FDI) continuum. The FDI continuum is emphasized in this review for two reasons: "1) It holds a substantial lead over any other dimension in the extent and quality of research; ...[and] 2) It is significantly related to interpersonal competencies..." (Cross, 1976, p. 116). Many names have been used to represent this continuum. Field-Dependence (FD) has been called a "global" perceptual style and

Field-Independence (FI) has been called both "analytic" and "articulated".

Individuals who perceive in an Field-Independent (FI) manner have three characteristics; (1) they are able to dis-embed hidden figures from a complex surrounding field, (2) they see items as discrete from their background, and (3) they are able to impose their own sense of structure on an unstructured perceptual field.

On the other hand, the three characteristics of Field-Dependent (FD) individuals are: (1) they tend to see a visual field as a whole, (2) they have difficulty in identifying the subcomponents of a visual field, and (3) they have difficulty imposing their own structure on an unstructured field.

A large body of literature from a variety of settings (Witkin, Moore, Goodenough, & Cox, 1977; Witkin & Goodenough, 1977a) has found overwhelmingly that FI persons tend to be analytic and task-oriented, whereas FD persons tend to have greater social skills and are oriented toward interpersonal relationships. These differences suggest that the more FI individuals would be likely to be more task-oriented in a group situation while the more FD individuals would be more likely to focus on group maintenance activities.

The tendencies to perceive either in an FI or FD fashion extend across both perceptual and intellectual functioning. FD and FI styles have been found to extend to

auditory and tactile modalities as well as visual perception. They are called cognitive styles because they are generally consistent and they cut across a wide variety of tasks and situations (Witkin, Goodenough, & Oltman, 1977) (2).

People see and make sense of the world in different ways. They give their attention to different aspects of the environment; they approach problems with different methods for solution; they construct relationships in distinctive patterns; they process information in different but personally consistent ways Cognitive style . . . has a broad influence on many aspects of personality and behavior . . .

Cross, 1976, p. 115-116

Original Research on FD and FI Cognitive Styles

The names Field-dependent (FD) and Field-Independent (FI) arose from the original experiments on perception that investigated how persons located an upright in space. Subjects had to locate a true vertical and ignore misleading

(2) Research in cognitive styles "developed in part because traditional research on ability failed to expose the processes generating individual differences" (Cronbach & Snow, 1977, p. 375).

visual or bodily cues in the experimental setting. If a subject could ascertain the true vertical despite the misleading visual cues, they were called "field-independent". The FI person based the position of the upright on their bodily cues, using internal physical sensation referents as opposed to external visual referents. The "field-dependent" person tended to be influenced by the prevailing visual field and aligned the upright according to the tilted visual stimuli.

Other experiments were conducted with rotating rooms, where centrifugal force caused the bodily cues to distract the FI subjects from what was actually a true vertical visual field. The FD subjects were not misled by the centrifugal force and only used the visual field.

Most recently the tests of embedded figures (EFTs) were developed to measure the FI and FD cognitive styles. FI subjects are able to break down a complex stimuli and impose their own structure or organization upon it. FIs use internal referents and FDs tend to use external ones.

The terms FI and FD are now in greater current usage than other terms for these styles (articulated/analytic and global). During the remainder of this paper the terms FI and FD will be used for referring to these perceptual styles. However, in this paper, when referring to studies that measure an analytic quality or trait that is not exactly the same as FI, the term "analytic" shall be used.

The Field-Dependence-Independence Continuum and Academic & Vocational Choice

Field-dependence-independence (FDI) is distributed continuously in the general population (Witkin, Oltman, Raskin, & Karp, 1971). Most persons are of average FDI. However, students in certain academic disciplines do have strong tendencies toward either the FD or FI style. These tendencies indicate that FDs are attracted to, and perform better in, those academic disciplines that emphasize interpersonal relations. FIs are attracted to, and perform better in, those disciplines that require cognitive restructuring skills. This is predictable: One would expect that persons with a particular cognitive style would gravitate towards those disciplines that are matched to, or are compatible with, their cognitive style. For example, FDs are more likely to major in elementary education, whereas FI students prefer the sciences (Witkin, Moore, Oltman, Goodenough, Friedman, Owen, & Raskin, 1977).

In addition to these differences in preferences for academic majors, significant cognitive style differences are found across (and within) different vocational areas. FDs favor occupations with a "people" emphasis. FIs favor occupations which require cognitive restructuring skills and which are relatively impersonal. Studies have shown that social workers and social studies teachers are likely to be FD; whereas engineers, architects, airplane pilots, and math & science teachers are likely to be FI. Even within particular occupations the FD and FI orientations hold for individual specializations. For example, in

the nursing field FD nurses tend to choose psychiatric nursing whereas FI nurses tend to choose surgical nursing (Witkin, Moore, Goodenough & Ccx, 1977). This large body of research provides evidence that the cognitive style of an individual is a strong corrolary to that person's academic and career choices.

Strengths & Limitations of The Embedded Figures Tests (EFTs).

The EFT and the Group Embedded Figures Test (GEFT) are the most commonly used research measures to ascertain FDI. While there are many noteworthy strengths to these instruments, there are also some limitations. The major strengths of these instruments are that they are well-conceptualized, well-researched, and firmly grounded in well-established theories of psychological differentiation.

The EFT has a moderately high degree of reliability. A number of studies reveal Spearman-Brown reliabilities of .60 to .90. Test-retest reliability of .89 was found for young men and women after a three year interval (Witkin, Oltman, Raskin, & Karp, 1971). The validity of the EFT is demonstrated by numerous studies which reveal that "the EFT, taken as an indicator of relatively differentiated functioning in perception, is associated with more differentiated functioning in a variety of other psychological areas" (Witkin, Oltman, Raskin, & Karp, 1971, p. 19).

The GEFT has a Spearman-Brown reliability coefficient of .82. The most appropriate measure of the validity of the GEFT is its correlation with the original EFT. The Pearson correlation between the GEFT and its "parent" test (the EFT) has been found

tobe stronger for men (.82) than for women (.63) (Witkin, Oltman, Raskin, & Karp, 1971). These sex differences indicate that the GEFT may be a less valid measure of field-independence for women than for men.

One major limitation of these tests (EFT & GEFT) is that they are biased in favor of FI persons. That is, a high score represents high FI and a low score represents high FD. A subject would score as FD by doing poorly at a task that FIs do well at. FD persons are labeled against a FI "yardstick", rather than being evaluated on a measure that they do well at.

There are few measurement techniques that adequately tap those abilities at which FDs outperform FIs. This is probably due to the fact that it was easier to develop a test to ascertain analytic ability than to develop a test to measure interpersonal skill. (Parenthetically, since most cognitive style researchers would tend to have an analytic, field-independent cognitive style their bias may have extended to the measures that they developed). Of those techniques that do measure FD, none are as conveniently administered as the EFTs.

Furthermore, the ability to shift from one cognitive style to another is a factor which is rarely measured. This limitation is due to the lack of adequate criterion measures for cognitive mobility (discussed in a later section). Mobility is a factor that remains undetected when only the EFTs are employed. Mobile FDs that could shift from their preferred style to function in an FI-manner on an FI-type of test (i.e., the EFTs), would score as FIs.

Psychological Differentiation and Field-Independence

FI (based on the EFTs) is a measure of articulated perceptual functioning, or simply, perceptual differentiation. Psychological differentiation is a broad construct that encompasses at least four major areas: (1) articulated perceptual and intellectual functioning, (2) articulated body concept, (3, sense of separate identity, and (4) structured specialized defenses. Another component of psychological differentiation is interpersonal discrimination, the ability and willingness to make distinctions among a group of people (i.e., to categorize and label persons into different subgroups). The relationship of perceptual differentiation (FI) and interpersonal discrimination to psychological differentiation is shown in Figure 1.

insert Figure 1 about here

Research has shown that FD is "related to both a lack of discrimination across people in evaluating others and a halo effect in evaluating others' attributes" (Gruenfeld and Arbuthnot, 1968, p.993). Perceptual differentiation (FI) and interpersonal discrimination are moderately correlated ($r = .36$; Rhodes, Carr, and Jurji, 1968).

Research on FDI is extensive. For greater detail about the historical development of Field-dependence-independence (FDI) research see Witkin, Moore, Goodenough and Cox (1977). There

exists an indexed four volume bibliography of over 3,000 studies dealing with FDI cognitive styles. No attempt is made here to recount those exhaustive findings. The section of this paper reviewing relevant research findings will treat only those studies germane to human relations training settings.

Review of Research on Cognitive Styles

In reviewing the literature on cognitive styles, and their implications in human relations training (HRT) settings, one is faced with an interesting paradox. Considerable research has demonstrated that Field-Dependent (FD) persons "are particularly interested in and selectively attend to social aspects of the surround. It need not be surprising to find that, because of this orientation, such persons are better at learning materials with social content" (Witkin, Moore, Goodenough, & Cox, 1977, pp. 17-18). This might suggest that they would be likely to be high learners in a laboratory setting, especially in a T-group.

The T-group, a particular aspect of HRT, is discussed here because of its unique qualities. Given that FDs tend to learn more social material, and are more attuned to interpersonal relations, it would be expected that FDs would be "cognitively matched" to the T-group process. However, a paradox arises when one discovers that the FD person has a much greater need for structure in the learning situation (Witkin, Moore, Goodenough, & Cox, 1977). The T-group represents extreme examples of both lack of structure (3) and an emphasis on social learning. It is not

immediately apparent which of these effects might play the stronger role. The T-group is cited here because it best represents this paradox.

This paradox is answered in part by the present review of literature. Although the findings are not totally consistent, there is stronger evidence supporting the position that FI persons gain more from human relations training. This suggests that the structure variable is more important than the social-content variable of the paradox.

Although there has been considerable research on the FD-FI cognitive styles, rather little of this research has taken place in social settings. As Witkin and Goodenough have noted, "Further delineation of the interpersonal competencies particular to people with a more field-dependent cognitive style, and identification of the social skills to be found among people with a more field-independent cognitive style, are important research tasks for the future" (1977b, p. 23).

Overview. The first part of this review is organized into three major theme areas: (1) social orientation, (2) participant style and member roles, and (3) satisfaction/learning/impact of experience. In addition, three other topics are treated. The possibility of persons shifting or altering their perceptual mode (or cognitive style) is discussed under (4) Cognitive

(3) The author has made the choice here to refer to learning climates that are intentionally designed to be ambiguous, such as a T-group, as being "unstructured." However, there is a structure to a T-group, despite the fact that participants may not perceive any such structure. A T-group might alternatively be called "complexly structured," whereas structured exercises (role plays, simulation games, etc.) might be called "simply structured."

Mobility/Rigidity. The next section, (5), briefly covers those studies indicating evidence of matching effects (or mismatch effects) in various settings. Last, (6) we discuss some contradictory studies that indicate that training itself may influence a person's cognitive style.

(1) Social Orientation

In general the FD person favors interpersonal settings, whereas the FI individual favors impersonal settings requiring cognitive restructuring skills (Witkin, Moore, Goodenough & Cox, 1977). Witkin and Goodenough (1977a) hypothesize that interpersonal competencies are the result of reliance on external referents. The FI individual is more differentiated and has a stronger sense of self-nonsel self segregation. The FI person is more likely "to rely on the self as the primary referent in psychological functioning" (p. 25). Also, FI individuals are more concerned with tasks than with interpersonal relationships.

FD persons are interpersonally oriented, which is a reflection of their reliance on external referents (Witkin, 1978). Both the FD and FI cognitive styles can be seen as adaptations to the tendency to function on the basis of either external or internal referents. FD persons typically have a repertoire of interpersonal behaviors that gives them access to the social cues they need for effective functioning. These same behaviors are not as necessary for FI persons (who rely primarily on the self) and therefore these behaviors are not as well-developed.

These differences in the use of internal and external referents are only found when subjects are in ambiguous situations (i.e., situations where the subject is not sure about how he/she is to behave). In unambiguous situations differences are not found between FD and FI persons. The T-group can frequently be quite ambiguous (4). In fact, it is designed to be that way so as to elicit interpersonal interactions that might not arise in a structured situation. Therefore, it was expected that differences in social behavior might be found in investigations of Field-Dependence-Independence in HRT settings.

FD persons "show an interest in others, prefer to be physically close to people, and are emotionally open" (Witkin & Goodenough, 1977a, p. 661). They look to others for information to help them function in ambiguous situations. They are more responsive and accomodating in dyads and in group situations. They "like being with others, are sociable, and gregarious, are affiliation oriented, and socially outgoing, . . . show participativeness, show need for friendship, . . . want to help others, have a concern for people, have wide acquaintanceship, know many people and are known to many people. (Witkin & Goodenough, 1977a, p. 572). FIs in contrast tend to have an impersonal orientation.

FD and FI persons handle the expression of anger in

(4) Ambiguity, or lack of perceived structure, in the T-group can be seen by: (1) no superimposed agenda, (2) no clear expectations for participant behavior, (3) participant responsibility for setting and achieving goals, and (4) the leader not providing the typical directive leadership found in most traditional learning climates.

different ways. Although both groups appear similar in their ability to recognize their own feelings of anger, FD persons are much less likely to express their anger directly towards others (Witkin & Goodenough, 1977). The tendency of FDs to accommodate others and to avoid confrontation probably contributes to their superior interpersonal skill. FIs in homogeneous FI groups tend to initiate more negative acts towards others (Goldstone, 1974), and FI dyads are less able to reconcile conflict (Oltman, Goodenough, Witkin, Freeman, & Friedman, 1975).

FD persons display more "looking behavior" in their attempt to seek information from others. By looking at others more often, they are more sensitive to others' feelings and views, and they take the views of others into account when forming their own opinions. FDs describe themselves as: sensitive, polite, tactful, accepting, considerate, warm and friendly. They tend to rate others significantly higher on a "liking" scale, and they tend to be liked by others more than do FI persons (Witkin & Goodenough, 1977). Figure 2 summarizes the personal qualities of persons with FD and FI styles.

insert Figure 2 about here

(2) Participant Style and Member Roles

The literature on cognitive processes has identified two strategies for concept learning (i.e., information acquisition). Learners with greater structuring ability tend to adopt a participant role in the learning process. This style is characterized by active involvement and hypothesis testing behavior. The other style is one of a passive learner or spectator. FIs tend to operate in the participant mode, whereas FDs tend to be spectator-type learners (Goodenough, 1976; Cross, 1976; Witkin, 1978).

If these patterns extend from the area of concept learning in experimental settings to T-group learning, then we would expect that FI participants would assume roles as active and involved (hypothesis-testing) group members. Conversely, FDs might be expected to assume passive spectator roles in the group. Many trainers have noted that active involvement appears to correlate with greater participant learning. Based on this, one can predict higher learning from FI participants.

The FD cognitive style has been found to correlate with group maintenance related functions in a structured graduate education course (Bodine, 1976). Group maintenance functions are those behaviors that encourage cooperation, collaboration, and participation in the group. Bodine's (1976) finding is predictable based on the characteristic social orientation of FD persons. Another study (Safer, 1975) confirmed this relationship and extended it. That study found that FD participants in a Tavistock workshop assumed socio-emotional roles and FI

participants assumed task-oriented roles. There is considerable literature linking the FI style with a task and achievement orientation (Witkin & Goodenough, 1977a; Gruenfeld & Arbuthnot, 1968; Simon, Langmeyer & Boyer, 1974; Templer, 1973).

It seems reasonable to hypothesize that these orientations will also manifest themselves in a small group setting such as a workshop or a T-group. One might predict that FI participants would exhibit a concern for task accomplishment. FIs might become particularly frustrated with the lack of directive leadership characteristic of a T-group. They would probably tend to assume leadership roles in organizing goal directed activities.

On the other hand, FD participants would be expected to be especially attuned to, and concerned about, other members feelings. FDs would probably provide emotional support to other group members. They would be expected to encourage collaboration and cooperation while striving to reduce intragroup conflicts.

The task orientation of FIs has other implications for HRT settings. When social information is provided incidentally or peripherally FI individuals will often neglect or overlook it. However, when they are attuned to the possibility of social data they perceive it as accurately as FD subjects (Goodenough, 1976). In fact a doctoral dissertation by Colker (1973) revealed that FI subjects were better than FDs at differentiated social perception when they were focused on the social interaction.

A pilot study (n=13) by the present author (Mezoff, 1980b) found that FI participants were ranked by their co-participants as being: 1) more task-oriented ($p < .01$), 2) more

maintenance-oriented ($p < .01$), and 3) more emotionally open ($p < .05$) than FD participants. Further support for FI superiority in providing group maintenance-type behaviors is found in still another T-group study. In that study, differentiation of person-space was also found to be significantly related to socioemotional skill (Stevenson, 1974).

The extensive literature on FDI predicts the finding of FIs being task-oriented. It is an unexpected, however, that FIs would also be rated as maintenance-oriented (Mezoff, 1980b; Stevenson, 1974) and emotionally open (Mezoff, 1980b). Mezoff's explanation for these findings follows: FIs were task and achievement oriented even when the task at hand was interpersonal relations. When their attention was focused on social learning in the group setting, FIs apparently "outperformed" FDs in the area of emotional openness and in providing group maintenance behaviors. This fits with the findings of Colker (1973).

Summary. There seems to be support for FIs being task-oriented in group settings (Safer, 1975; Mezoff, 1980b). Findings are contradictory, however, with respect to whether FD or FI persons perform more of the group maintenance functions. FDs were found to be more maintenance-oriented by Bodine (1976) and Safer (1975), whereas FIs were more maintenance-oriented in the studies by Stevenson (1974) and Mezoff (1980b).

The Bodine (1976) study involved a structured classroom exercise requiring the viewing of a film. This study is somewhat unrelated to human relations training. The Safer (1975) study

employed an analysis of participants verbal responses during one session of a Tavistock workshop. The Stevenson (1974) and Mezoff (1980b) studies both employed a peer ranking procedure in the context of a T-group setting.

Perhaps the differences in findings between the Safer study (1975) and the two studies by Stevenson (1974) and Mezoff (1980b) can be attributed to the different forms of evaluation (analysis of verbal responses vs. peer ranking), or to the different format in the conduct of the laboratories (Tavistock vs. T-group).

The Bodine study (1976) is limited in its generalizability to a HRT setting. Mezoff's study (1980b) is limited by a small sample size. The differences between the findings of Safer (1975) and Stevenson (1974) with regard to who performs the group maintenance functions remains to be explained. Further research is required to determine whether some effects are evident only in certain types of groups, and whether the assessment instruments influence the findings.

(3) Satisfaction/Learning/Emotional Impact

(3-A) Satisfaction With Training. It is difficult to predict whether participant cognitive style would bear any relationship to satisfaction with HRT. On one hand, FDs prefer social interaction, they seek it out, and they appear to be more skilled and more successful at it. On the other hand, some educational studies report that FD students profit more from a structured instructional approach, due to the fact that FD persons have difficulty imposing their own structure on ambiguous classroom situations (Cronbach & Snow, 1977; Wirkin, Moore, Goodenough &

Cox, 1977). There is evidence to suggest that FD students prefer an informal, interpersonally oriented, unstructured approach. However, they are the least likely to benefit from it (Cronbach & Snow, 1977).

(3-B) Task-Orientation Of High Learners In HRT. Earlier research in HRT has revealed that task and achievement-oriented participants tended to be the high learners in a laboratory (Harrison & Lubin, 1965; Mitchell, 1975). Possible explanations for this finding have included the following: (1) task oriented group members experienced "culture shock" and this facilitated their personal growth and learning; (2) interpersonally oriented participants were already socially skilled and therefore had less room to improve their skills than task oriented persons; and (3) task oriented individuals were so inept interpersonally that they would necessarily display large gains in interpersonal learning.

The pilot study on cognitive styles in human relations training by Mezoff (1980b) found that FI individuals were rated by their co-participants as being more satisfied with the training and as having learned the most when compared to FD persons (both at $p < .01$).

The finding of FIs being rated as the most satisfied and as having learned the most supports some of the earlier HRT research (Harrison & Lubin; Mitchell) which showed task and achievement oriented persons as being high learners in lab settings. Support for the finding of FI superiority in HRT can also be found in Steele's (1968) study where analytic/problem-solving oriented persons profited most from training.

It should be noted that the results of Poland and Jones (1973) contradict the findings that task-oriented participants gain the most from HR training. However, Poland and Jones used a task-oriented dimension that reflected an orientation toward the achievement of group goals. Poland and Jones themselves state that it is not clear whether their task-oriented category is comparable to the work-oriented category of Harrison and Lubin (Poland & Jones, 1973, p.501).

The FI style may provide HRT participants with superior analytic and cognitive structuring skills with which to interpret, analyze, and internalize their HRT experience. From this finding it is possible that FI persons might be more likely to be satisfied, as well. This explanation is well founded in cognitive style theory. It seems to be a viable alternative to the explanations offered by Harrison & Lubin and others, namely: (1) that the task oriented members experienced "culture shock" and were, therefore, pushed toward change, and (2) that the interpersonally oriented members were already socially skilled and had less room to improve.

Prior to Mezoff's study (1980b), the only available evidence regarding cognitive style preference or satisfaction in a HRT setting was anecdotal in nature. This evidence suggested that FDs resented high structure and performed more genuinely in a low structure treatment (5). Conversely, FIs "struggled when no structure was available, but seemed more relaxed when the [high

(5) It is not clear, however, whether FDs in the low structure treatment performed better in terms of interpersonal skills or higher levels of affective learning

structure] condition provided them with a goal and a task" (Rappoport, 1975). This anecdotal evidence contradicts the findings of Mezoff's pilot study and other research. The Rappoport study was different from the other studies cited here in that both of the treatment groups were relatively highly structured.

In summary, despite a lack of consistency between the studies, the preceeding evidence points towards the position that FI/analytic/task-oriented persons tend to gain the most from human relations training.

(3-C) Learning And Motivation. FI or FD persons may learn more than the other depending upon the type of situation they are in. Motivation is a key ingredient in determining whether FDs learn more than FIs, or vice-versa (or, whether their learning is equal). FIs learn and remember significantly more than FDs under conditions of intrinsic motivation, but FDs are superior under conditions of negative response-contingent reinforcement. When rewards for learning are extrinsic and positive no differences are found between FD and FI persons (Goodenough, 1976).

In HRT these differences may account for how and why people are differentially responsive to various group dynamics. FI persons are likely to respond to conditions that supply intrinsic rewards, whereas FD persons are more externally oriented towards relationships with others and they tend to value the approval of others. Group pressure towards conformity is, therefore, more likely to affect FDs than FIs.

Rewards in HRT are found both internally and externally.

Social approval, warmth expressed by others, and acceptance by the group are likely to be important motivators to FD persons. FIs are more likely to be motivated by meeting challenges and accomplishing tasks that they set out for themselves. Considering the focus of HRT, it is probable that many of these challenges and tasks would be in the area of interpersonal relations. Behaviors, such as expressing one's self effectively and congruently, may be equally evident among both FD and FI participants. However, their motivations for their behaviors may differ considerably.

(3-D) Learning From Feedback. Learning in HRT is partly a result of the unique opportunity to receive feedback on one's own interpersonal behavior. FDs look for feedback (both non-verbal and verbal) from others and tend to use the feedback to modify their actions and/or beliefs (Witkin, 1973). In educational settings FI persons are less influenced by the course feedback (grades or evaluations) they receive (Witkin, Moore, Goodenough, & Cox, 1977). If laboratory learning results in part from feedback from others, then the FD person may learn more as a result of being more influenced by the feedback they receive.

(3-E) Emotional Impact. FD persons, despite the fact that they are more influenced by feedback, may not be able to profit as much from such feedback when it occurs. This is because they tend to have typical psychological defense mechanisms (Witkin, Lewis, & Weil, 1968; Safer, 1975; Goodenough, 1976) that prevent them from acknowledging the impact of the feedback, especially if it is negative. Lecomte (1976) found that "[FDs] discredited ($p <$

.05) and dissociated ($p < .05$) the source of feedback significantly more than [FIs]" (p. 5949).

This limited evidence suggests that: 1) feedback, in general, has a greater impact on FD persons, and 2) negative or critical feedback is more likely to be blocked out (denied, repressed, discredited) by FD persons. These mixed findings regarding the value of feedback-related learning suggest that this is an area worthy of continued investigation.

(3-F) Transfer Of Learning. Consistent with the participant/spectator approaches discussed earlier, FI individuals (using their preferred "participant" strategy) appear to demonstrate greater positive transfer of training (Goodenough, 1976). It would appear that such a trait would be very helpful in taking the learning from an HRT program (usually in the context of a "cultural island"), expanding it, and applying it to a back-home situation. Extending the findings of Goodenough (1976) it would appear that FIs would be more successful than FD persons at transferring their learning from the lab setting to the real (non-lab) world.

(3-G) Differences In Stress Reactions And Defense Mechanisms. It appears that FD persons are more affected by stressful material than FIs (Goodenough, 1976). There seem to be characteristic reactions to stress that differ between FD and FI persons. FD persons typically use repression, denial of unpleasant events, and denial of affect (Goodenough, 1976; Safer,

1975). FIs tend to use hostility directed outward and "distancing" mechanisms as typical defense mechanisms (Witkin, 1965; Witkin et al., 1968). These differences in defensive reactions should be evident in the interpersonal relations among participants in the laboratory. The differences should also be evident intrapersonally, in terms of how each group member deals with the stress and dissonance he/she experiences in the training.

Although FDs are more likely to experience a greater impact, their typical defense reactions may prevent them from accurately reporting the impact of the group upon them (especially if their group experience was negative). Therefore, if one were to ask HRT participants to report the impact of their laboratory experience, one might have difficulty obtaining reliable reports, especially from FDs.

FD persons are more likely to experience shame and anxiety as opposed to anger. Shame reactions and the threat of revealing one's true self probably account for the fact that FD participants are more likely to drop out of HRT programs than FI participants (Robinson, 1974).

In two different studies of college students, those persons who selected sensitivity training were characterized by qualities associated with the FI style (Gilligan, 1973; Kennedy, 1972). The same defensive reactions that make it likely for FDs to drop out of training probably make them less likely to volunteer for it.

(3-H) Summary. There is not yet conclusive evidence, but the studies reviewed here suggest that FI persons tend to be the high

learners in HRT. FIs are more likely to select training, whereas FDs are more likely to drop out of HRT programs. FIs are also more likely to demonstrate greater positive transfer of training to the back-home environment.

(4) Cognitive Mobility/Rigidity

Recent research had led Goodenough & Witkin (1977) to hypothesize a mobility dimension orthogonal to FDI (i.e., at right angles to FDI and therefore uncorrelated with it). This mobility dimension represents a capacity to shift one's preferred perceptual mode. A mobile individual will have access to styles other than his/her preferred one (Witkin, 1978). Different situations require different cognitive styles for successful outcomes (6). Some situations require cognitive restructuring ability, while others require skill at interpersonal relations. Persons versed in both skill areas will presumably be more successful overall than individuals who are rigid in their cognitive style. Hopefully, individuals can be trained to become versed in a variety of perceptual styles so that they may alter their own style in response to the demands of the task or the characteristics of the situation at hand.

Appropriate responding requires diagnostic skill and behavioral flexibility. The superior discriminative ability of FIs suggests that they would have an advantage over FDs in

(6) See the original research experiments requiring the location of an upright in space. In stable rooms FIs were more accurate than FDs. FDs, however, were more accurate than FIs in the rotating rooms.

diagnosis of situations with a task focus requiring cognitive restructuring skills. In those situations requiring diagnostic skill in interpersonal relations FDs may be more perceptive. FDs are more attuned to incidental social information. However, when subjects are specifically told to attend to social material, no differences in learning are found between FD and FI persons (Goodenough, 1976). It is unclear whether either FD or FI persons would have an advantage over the other in being able to alter their behaviors.

We might hope to facilitate greater cognitive style flexibility among both FD and FI persons. Different situations may require one perceptual mode or the other for successful interaction or task accomplishment. Therefore, it would be most useful to encourage persons to be mobile and be able to alter their style to meet the demands of the situation.

Training to develop analytical abilities (high FI) can be fostered by appropriate educational efforts (Goodenough & Witkin, 1977). Whether these training effects are generalizable to a wide range of restructuring behaviors remains to be demonstrated. Human relations training is a process that attempts to foster greater competencies in interpersonal relations. There are few, if any, adequate criterion measures to determine the achievement of such a goal.

Research on the mobility-rigidity dimension has not progressed rapidly (Witkin & Goodenough, 1977b). A doctoral dissertation by Botkin (1974) investigated four different measures of mobility-rigidity. She found that the indices of

perceptual mobility were not correlated with the indices of cognitive mobility. This result has implications for the researcher wishing to investigate mobility-rigidity in relation to cognitive style. An appropriate measure of mobility must be used, and the limitations of particular measures should be carefully investigated (7). At present there appears to be little relationship between FDI and mobility (Del Gaudio, 1976). That is, neither FD or FI persons have been found to be more mobile than the other.

(5) Cognitive Style Match/Mismatch Effects

(5-A) Treatment-Person Matching. A considerable body of literature exists documenting treatment-person matching effects with cognitive style. For matching investigations in educational settings see Cronbach and Snow (1977), Cross (1976), Hunt (1971), Hunt & Sullivan (1974), and Witkin, Moore, Goodenough, & Cox (1977).

Cross (1976), Hunt (1971), Hunt & Sullivan (1974), and Witkin, Moore, Goodenough, & Cox (1977) suggest that matching the educational treatment to students' cognitive style is a powerful and viable process for maximizing students' learning outcomes. The position taken by Cronbach & Snow (1977) however, is considerably less optimistic. Cronbach & Snow (1977) state that

(7) A review of literature revealed the following measures in research attempting to ascertain cognitive mobility: 1) Rorschach-type tests (Bieri & Blacker, 1956; Hemmendinger, 1953), 2) Necker cubes and other optical illusions (Haronian & Sugarman, 1966; Bloomberg, 1971), 3) the Stroop Word-Color Test (Eisner, 1972), and 4) Word Association and Object Sorting tasks (Del Gaudio, 1976).

"the studies on FI ... are a rather motley collection at this stage of the work" (p. 385). In their review of treatment-person matching studies Cronbach & Snow (1977) identify "enough inconsistencies to make generalization impossible for the present" (p. 385).

A recent and exhaustive review of treatment-person matching in psychotherapy settings is found in Berzins (1977). He concludes that matching research in psychotherapy has not revealed powerful interacting variables. Even if future research on promising areas of individual differences proves useful, Berzins (1977) states that the critical issue in matching "is the pragmatic matter of incremental validity. To what extent will the matching algorithm improve upon the usual outcomes yielded by a clinical system...?" (p. 247).

(5-B) Person-Person Matching. In addition to treatment-person matching there can exist person-person matching. Interpersonal attraction is facilitated by similarity of cognitive styles. Matched persons seem to be better able to communicate with each other, probably because they sense that they are on the same cognitive "wavelength" and are better attuned to each other (Witkin & Goodenough, 1977a). People also have a tendency to disclose important life situations and personal information to others of a similar cognitive style (Witkin, 1978).

In a study of high school teachers and students, "[cognitively] matched students perceived their teachers [as] significantly more aware, warmer, and more accepting, more

positive, more open, more innovative, and more responsive compared with the perceptions of mismatched students ($p < .01$)" (Gaeta, 1977, p.7506-A). Matched students also perceived their teachers' behavior as closer to an ideal than did students who were mismatched ($p < .01$).

Cognitive style similarity has also been found to relate to friendship choice. Individuals were more likely to choose as friends those persons of a similar cognitive style. Similarity of age or religion, however, was found to be a more powerful determiner of friendship choice than FDI. As predicted by their superiority in interpersonal skills, the FD subjects were more often chosen as close friends (Wong, 1977).

FD and FI styles are highly salient in every day life. Research has revealed that some people tend to adapt their behaviors to the cognitive style requirements of others with whom they interact. This adaptation can occur very rapidly, even among people meeting for the first time (Witkin, 1978). Obviously, mobility (discussed earlier) contributes to the individual's ability to alter his/her behavior in accomodating another person. As there are not yet any adequate criterion measures for mobility, it is not possible to state whether FD or FI persons are more mobile. As stated earlier, there is no apparant relationship between FDI and mobility.

Person-person matching between therapist and patient on conceptual level (a construct representing a somewhat different aspect of psychological differentiation than FDI) has revealed significant results. "Matching of conceptual level of the patient

and the therapist significantly improves the probability of successful therapeutic process and outcome" (Postuma & Carr, 1975, p. 35).

Therapist -patient pairs matched on FDI demonstrated greater mutual attraction and were less likely to result in premature termination of the therapy (Folman, 1973).

(5-C) Mismatching Of Participants And HRT Treatments. A study by Soure, Frye, Green, and Cassens (1971) cited examples of the over-use of sensitivity training. They suggested that many HRT programs have failed (or been of questionable benefit) due to an inappropriate match between the training and the cognitive styles of participants.

(5-D) Matching Models Applied to Training. Exploring matching effects in HRT settings is a fertile area for research. Before matching model (or aptitude-treatment-interaction) research can be done, preliminary groundwork must be laid. This paper is intended as a step in that direction.

(6) The Influence of Training on Participant Cognitive Style

The studies reviewed in this section all employed measures of cognitive complexity. This construct dimension is different from, yet related to, field-independence. Cognitive complexity and FDI both represent aspects of psychological differentiation. Most studies investigating the relationship between these constructs have not revealed significant correlations (Elliot, 1961; Hickman, 1975; Langley, 1971). However, variations in the instrument (Kelly's "Role Construct Repertory Test", Bieri's "Cognitive Complexity/Simplicity Scale", and Carr's "Interpersonal Discrimination Test"), as well as variations in scoring schema, preclude comparisons across studies. Carr's "Interpersonal Discrimination Test" consistently reveals low but significant correlations with FDI (Carr, 1977; Mezoff, 1980b).

T-group participation has been found to result in increased cognitive complexity (Harrison, 1966; McCrimmon 1975). Other T-group research (Baldwin, 1972) has revealed significant changes in participants in the direction of greater cognitive simplicity (i.e., less interpersonal discrimination). Although such discordant findings are distressing for the theoretician, two possible explanations can be offered for these contradictory findings.

First, the nature and emphasis of these training programs was different. The Baldwin training involved only structured exercises and emphasized positive aspects of self and others and strove to achieve higher acceptance of self and others. Perhaps this accounted for the change toward less discrimination. The

McCrimmon training was an unstructured encounter group experience. The treatment in the Harrison study was a laboratory for group development sponsored by NTL. Presumably, this training included a T-group component. The encounter group or T-group formats may not have been as supportive or nurturing as the Baldwin training program. Perhaps support leads to underdifferentiation, whereas the dynamics of an encounter or T-group leads to overdifferentiation.

A second (and perhaps more important) difference between these studies (Baldwin, 1972; McCrimmon, 1975; Harrison, 1966) was the use of different instruments to ascertain cognitive complexity. Baldwin used the Bieri Cognitive Complexity Simplicity Scale and the other two studies employed Kelly's Role Construct Repertory Test.

Whether HRT influences cognitive style may depend on both the training treatment as well as the specific measure of psychological differentiation. The participant's mobility is yet another factor which could determine how a person's cognitive style can be influenced by training.

In the case of training that is not exclusively supportive (as Baldwin's was), we may infer from this preliminary evidence that participation in HRT tends to be associated with an increase in cognitive complexity. Cognitive complexity is related to (yet not identical with) field independence. The difference between these constructs makes it difficult and probably invalid to infer a relationship between training and increased FI from these studies.

An adult's standing on the FDI continuum is characteristically stable over time (Witkin, Moore, Goodenough, & Cox, 1977). If, however, HRT was associated with an increase in FI, then we are left with a paradox. How is it that a training program designed to increase interpersonal competencies and sensitivity to others (both FD characteristics) can be associated with a shift toward greater FI ?

This paradox may be answered, in part, by understanding that the FDI continuum represents a tendency to rely on either external or internal referents (the FD and FI styles, respectively). Witkin and Goodenough (1977b) explain that "training in personal autonomy ... would, according to [their] model, contribute to increased skill in cognitive restructuring ..." (p.28). Perhaps some HRT programs encourage autonomy and a tendency to rely on internal referents. If so, we might then expect increased interpersonal skill along with greater FI to result from training programs with such a focus.

Summary

Cognitive styles have a large influence upon how we see and organize our interpersonal world. These differences are not usually taken into account explicitly by educators or psychotherapists. However, a considerable body of literature suggests that the impact of cognitive styles on teacher/student and therapist/patient relationships is significant. The significance has been demonstrated in terms of student/client satisfaction with instructional/therapeutic treatment, mutual

attraction, and favorable ratings of others.

HRT is a field that draws from education and from psychotherapy (for normals). Although very few studies have attempted to explore the effect of cognitive styles in HRT, it appears that this research may yield considerable benefits to trainers who wish to be more attuned to individual differences. If research reveals significant findings indicating cognitive style influence on training outcomes, then this knowledge could be of considerable use to trainers in developing training programs.

Despite the possibility of a lack of significant research findings, other benefits can accrue to the trainer/consultant who is conscious of cognitive style differences. Being sensitive to individual differences is a first step toward accomodating them, even if explicit matching strategies are not yet available. The more the trainer is aware of individual differences (especially those as pervasive as cognitive style) the more effective s/he can be in designing and implementing training treatments.

Future Research

One major purpose of this paper is to call for HR research that employs a design which takes into account the differential effects of training on various participant subpopulations. Large scale aptitude-treatment-interaction research projects (with multiple treatments and large sample sizes) are unlikely in HRT. However, when providing a single training treatment, it seems crucial to understand whether the training is effecting different persons in different ways. Researching differential effects, even

within a single treatment training program, is important for two reasons. If differences are found: 1) the training may then be able to be better tailored to participant needs, and 2) unproductive matches of certain participants with certain types of training can be avoided.

One of the most promising variables to explore the differences in responsiveness to training is participant cognitive style. Future investigations of the influence of participant cognitive styles on HRT outcomes should take the following factors into consideration:

1. The cognitive style dimension that is investigated should be one that is likely to interact with the type of treatment that HRT provides. In addition to Field-Dependence-Independence other researchers might consider investigating cognitive complexity versus simplicity, reflectiveness versus impulsivity, and tolerance for unrealistic experiences (Messick, 1970).

2. Research related to Field-Dependence-Independence should take into account mobility and rigidity as an intersecting dimension (Witkin, 1978). This dimension will probably affect training outcomes, too. Mobile individuals are those persons that can shift or adapt their perceptual style contingent upon the situational demands. Research findings may be clouded by the presence of mobile individuals if this variable is not controlled. HRT could be explicitly designed to facilitate cognitive flexibility.

3. Raters, other than participants, should be included in the evaluation of training outcomes to corroborate the measures

obtained through self or co-participant rankings. Evaluations by the group facilitators, trained observers, and back-home colleagues could be included to form an inter-source consensus. The reliability of self ratings by participants could perhaps be increased by having trainees rate themselves against some objective standard (e.g., a videotape modeling certain types of behaviors).

4. Interaction effects of cognitive styles will probably be more evident if the training treatment that is provided is relatively "pure". A pure structured approach to training (e.g., micro-counseling) might conceivably produce a completely different effect than a pure unstructured approach (e.g., exclusively T-grouping).

5. The length and spacing of the training treatment is a variable that may influence differential outcomes for persons of varying cognitive styles. Differential effects related to the length and spacing of training have been noted by Schubert (1972) and Bunker & Knowles (1967).

6. The nature of the outcome variables chosen and the measures used to assess those variables may be differentially positive for different cognitive styles. Clarity regarding such "bias" is critical.

Endnote. Human relations trainers "pay lip service" to individual differences, but we infrequently modify our training designs to accommodate the perceptual or cognitive styles of our participants. Understanding the differences among persons of varying cognitive styles is a first step towards accepting the

styles of others. Acceptance can be a difficult task, especially if others' styles are at variance with our own style or incompatible with our predetermined training design. If we can adopt the same behavioral flexibility that we encourage in our participants, then we will be better able to adapt ourselves and our training designs to the cognitive style needs of trainees.

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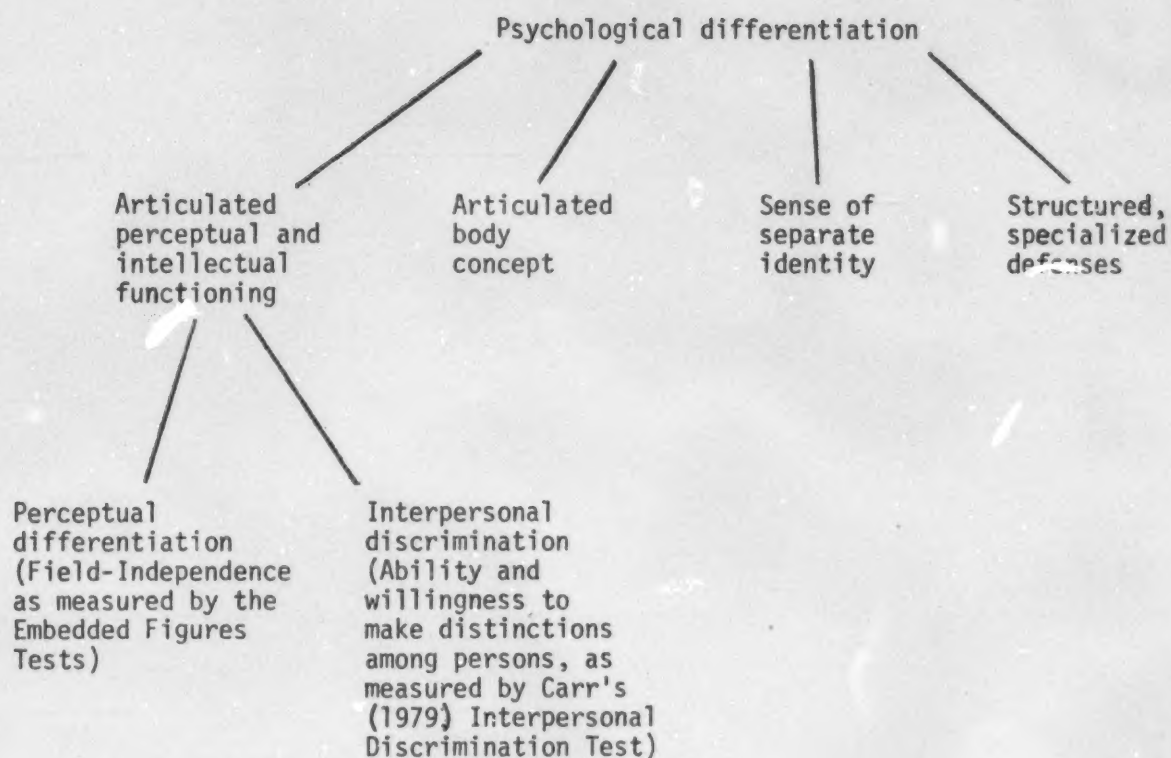


Figure 1. Relationship of perceptual differentiation & interpersonal discrimination to psychological differentiation.

Qualities of Persons With Field-Dependent and Field-Independent Cognitive Styles

Field-Dependent Style

Prefers social interaction
Greater consideration & empathy
for others
More sensitive to others values
& attitudes
More effective at resolving
conflict
More compliant and accomodating
in social situations
Warm, tactful, helpful, concerned,
sociable
Describes self in socially
desireable terms

Field-Independent Style

Task & achievement oriented
Concerned with mastery of his/her
environment
Analytical mode of perception
Individualistic, self-reliant
Concerned with ideas & principles
rather than with people
Able to impose their own structure
in unstructured situations
Less likely to request others'
help

Figure 2. Qualities of persons with field-dependent and field-independent cognitive styles.